AVIATION

JUNE 25, 1923 Issued Weekly PRICE 10 CENTS

Army Fokker transport plane T2 flying over McCook Field, Dayton, Ohio

VOLUME XIV

NUM 2

SPECIAL FEATURES

NEW WORLD'S RECORDS

VALUE OF BARRAGE BALLOONS

RULES OF THE ST. LOUIS AIR RACES

DESCRIPTION OF PACKARD AIRSHIP ENGINE

THE GARDNER, MOFFAT CO., INC.

HIGHLAND, N. Y.

225 FOURTH AVENUE, NEW YORK

Entered as Second-Class Matter, Nov. 22, 1920, at the Post-Office at Highland, N. Y. under Act of March 3, 1879.

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VOL. XIV. NO. 26

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CONTENTS

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Showing the Flag

ACCORDING to a decision announced by the United States Shipping Board, the Government will operate a sufficient number of vessels to keep the American flag flying on all world trade routes

If American Aviation had a leader who would champion its needs in Congress, it is probable that the Government could be made to adopt a somewhat similar policy with regard to Commercial Aviation Commercial aircraft, more so even than merchant vessels of the sea, by showing the flag of a country, help in establishing and maintaining its prestige abroad, and so enlarge its material and moral influence.

Though we have won the principal world's aviation records, they will represent a barren victory if they are not followed up by a well formulated aerial policy which will enable the industry to find foreign markets before European aircraft interests have obtained a strong footing This applies in particular to Latin America, where British, French and German interests are extremely active.

While technical and financial considerations preclude for the time being any aerial intercourse between this country and Europe, similar difficulties do not exist with respect to Alaska, Mexico, the West Indies and Panama. The pioneering work done by the Air Mail Service on the transcontinental airway, is an example of the valuable kind of assistance the Government can furnish Commercial Aviation It is believed that this assistance should be extended to open up an air mail line to Alaska, and another to Mexico and Panama. On both routes much charting of the air lanes will have to be done before commercial aircraft can regularly use them That our outlying possessions should be linked up by air with the continuous United States will be obvious to all who have given this question thoughtful attention

It is hoped that when the budget for the coming fiscal year is being prepared, the question of "showing the flag" by air in our outlying possessions will find a spokesman worthy of the importance of the subject

British Air Policy

SIR SAMUEL HOARE, British Air Minister, in presenting in the House of Commons the estimates for the Royal Air Force made a statement regarding the British aircraft industry that ought to be of special interest to our aircraft manufacturers.

"The orders which the Air Ministry will place with the aircraft industry during the forthcoming year," said Sir Samuel, "will be substantially greater than in recent years The industry has been passing through very lean times, and the paramount claims of national economy have made it very difficult for the Air Ministry to give it the assistance which its value to the state might have seemed to justify. There is every reason to anticipate that from now on a strict estimate of requirements will be sufficient to maintain an adequate number of firms on a sound and stable basis."

In 1922-23 British government expenditure for airplanes and airships was £786,000 This has been increased to £3,620,000 or about five times. It would appear from the estimates that practically all of this is to be spent on heavier than air equipment. The total budget asked for was £12,244,863

If the estimates of the requirements of the United States for air defense could be segregated so that the public and Congress would know just how much the country is spending for this activity, it would be easier to judge the progress that is being made, and to make comparisons. As these estimates are interwoven with so many other estimates it is very difficult to make fair comparisons.

With the aircraft industry in France adequately supplied with governmental business, and the prospect of the British aircraft industry being put on a sound basis, we may look forward with confidence to the time in the near future when national policy will require the United States Government to extend to the American aircraft industry the support it deserves as an essential factor in national defense.

Flying Low Over Crowds

WITH the flying season getting in full swing, there are renewed instances of itinerant pilots flying low over crowds gathered at baseball games, beaches, etc. Cases of this sort have not been very frequent as yet, for pilots of the Army and Navy Air Services, the Air Mail and the reputable air lines do not commit such infractions of the rules of safe and sane flying

The few pilots who go counter to the New York City Ordinance which prescribes a minimum altitude of 2000 ft when flying over Greater New York cause commercial aviation considerable harm They should realize that by flying low over crowds they do not boost aviation quite on the contrary they create a volume of antagonism against the airplane, for many onlookers have read of machines crashing into crowds, so that the comment addressed to the pilot is often far from complimentary.

For the sake of the future of commercial aviation the harmful practice of flying low over crowds should be wiped out by common agreement among all decent pilots.

Packard Model 1551 300 hp. Airship Engine

BY J. G. VINCENT

Vice President of Engineering, Packard Motor Car Co.

The six engines which will drive the Navy's great airship, the ZR1 now nearing completion at Lakehurst, N. J., are being built by the Packard Motor Car Co. at its factory in Detroit. All are expected to be complete in time for installation about July 1.

One of the engines recently tested at Philadelphia Navy Yard met every requirement and drew enthusiastic praise from the Navy officers who witnessed the trials. The engine is of the same type as the Packard engine which was given a 300 hr. test last summer, the first aviation engine ever to pass successfully through such a rigid trial.

General Characteristics

The engines are of the six cylinder in line vertical type. They are water-cooled and have a bore of 6⅝ in. with a stroke of 7½ in., giving a piston displacement of 1551.24 cu. in. The rated horsepower is 300 b.h.p. at 1400 r.p.m.

The crankshaft has seven main bearings with diameters of 2.875 in. and the following lengths: propeller end 3.375 in., intermediate 2.5 in., center 3.25 and front 2.625. The crankpin diameter is 2.875 in. and crankpin bearing width 3.125. Connecting rods are 12.75 in. long. Pistons are die cast of aluminum alloy. The compression ratio is 6.5 to 1.

The crank case is of the box section type, parted on the center line of the crankshaft. The main bearing bolts are carried through the crank case to receive the cylinder hold down bolts.

Cylinders are of the built up individual steel type, reversible in respect to inlet and exhaust ports. Provision is made for positive lubrication to the cylinder bore. There are two exhaust and two inlet valves to each cylinder. Valves are made of high tungsten steel. They are 2 in. in diameter in the clear with 30 deg. seats. Inlet valves lift 7/16 in. and exhaust valves ⅜ in. There are two concentric springs on each valve.

There is a double rocker arm to each pair of valves with a single push rod. The rocker arm ratio is 1 to 1.405 and there are two roller bearings on a ½-in. shaft. A force feed grease system is used for lubricating the rocker arms. A double impeller centrifugal pump running at one and a half engine speed is used in the cooling system.

Delco ignition system is used and there are four spark plugs to each cylinder. There are two six-cylinder duplex distributors and four ignition coils in Bakelite cases mounted on the instrument board. The generator is a 12-volt constant current type running at one and a half engine speed. A hand crank with automatic engagement and disengagement and geared 10 to 1 is provided for starting.

The equipment on the instrument board includes the following: acetylene primer, double ignition switch with ammeter, vibrator and starting switch, tachometer, high pressure oil gage, low pressure oil gage, outlet water thermometer, oil inlet thermometer, reverse current relay, throttle control, spark control, mixture control, automatic shut-down unit and four ignition coils.

Because of the necessity of directing the exhausts away from the ship both right and left hand engines are provided. The right hand engines are so designed that exhausts are on the right side and the engine rotates clockwise looking toward the propeller. Left hand engines run counter clockwise and exhausts are on the left side.

For right hand engines the water pump, generator and exhaust manifold are mounted on the right side and governor, carburetor and inlet manifold and ignition interrupters for standard service are on the left. All these units are shifted to opposite sides on the left hand motors.

The weight of the engine complete with instrument board and hand starter is 1100 lb. and the weight of the water in the engine 50 lb.

Tests of the engines which have been made gave a maximum of 350 b.hp. at 1400 r.p.m. and a normal rated horsepower of 300 at 1100 r.p.m. The maximum fuel consumption was 0.5 lb. per b.hp. hour at 1400 r.p.m. with a normal fuel consumption of 0.45 lb. per b.hp. hour. The maximum oil consumption at 1400 r.p.m. was 0.03 lb. per b.hp. hour and the normal 0.02 lb. per b.hp. hour.

The oil supply is carried in a tank with a capacity of 8 gal. located on the floor beside the engine. The oil is led from the bottom of this tank through a shut-off valve to the inlet connection provided on the oil pump, this being the lower of the two connections. The oil then passes through the pressure pump which corresponds to the outer set of oil pump gears or those furthest removed from the engine. The oil is then discharged through the passage at the upper left hand portion of the pump which passage communicates with a pipe fastened in the timing gear case and leading up to the under surface of the oil controller. The oil then passes through a two way cock which determines which of the two strainers is in use and which permits of cleaning the strainers one at a time while the motor is running.

After passing through the oil strainer the oil returns through the cock and can then take two paths, one down through the crankcase and the other through the horizontal main high pressure relief valve. The adjustment of the tension on this valve spring determines the oil pressure carried through the main lubricating system and at 1400 r.p.m. this pressure should be from 75 to 100 lb. The overflow from this high pressure relief valve passes through the low pressure relief valve which occupies a vertical position at the center of the controller. Between these two relief valves a connection is provided for the pipe supplying oil for cylinder lubrication.

Crankshaft Construction

The crankshaft is hollow and in the center of each main bearing a radial hole is drilled through the shaft into the hollow center. This hole in the shaft registers with a corresponding hole and groove in the main bearing once every revolution of the shaft at each time a small quantity of oil is forced through into the hollow crankshaft. A passage leads from each hollow main bearing to the adjacent crank pin which is also hollow. A radial hole in each pin lubricates the pin. A tube fastened to the connecting rod carries oil through the connecting rod big end bearing to the piston pin bearing. At the timing gear end of the engine the oil pump driving idler shaft is also lubricated under pressure as well as the cam shaft idler driving gear bushings. Additional passages carry oil up to the cam shaft bearings at this same end of the engine. The cam shafts are hollow and provided with holes at each cam shaft bearing so that these parts are all pressure lubricated. A passage is provided around the inlet cam shaft bearing at the timing gear or control end of the engine and communicates with a special fitting fastened to the crankcase directly over the cam shaft. From this point the oil is led by an external pipe to the governor and after passing through the governor is led by another pipe to the control board. At this point the oil line connects with the throttle control unit.

A manifold running the length of the engine parallel and close to the inlet cam shaft communicates with drilled passages which project through the top surface of the crankcase and register with drilled holes in the cylinder flange. These holes extend upward for a short distance in the cylinder barrel and then meet another hole drilled through the cylinder bore. In this way oil is positively fed to the cylinder bore on the inlet side which is that side of the bore exposed to the greatest thrust from the piston. The vertical passages through the crankcase are restricted at the upper end to prevent too copious a flow of oil onto the pistons.

The oil which is thrown off from the connecting rods and main bearings and cylinder walls falls by gravity to the bottom of the crankcase and is sucked out by either one of two scavenging pumps.

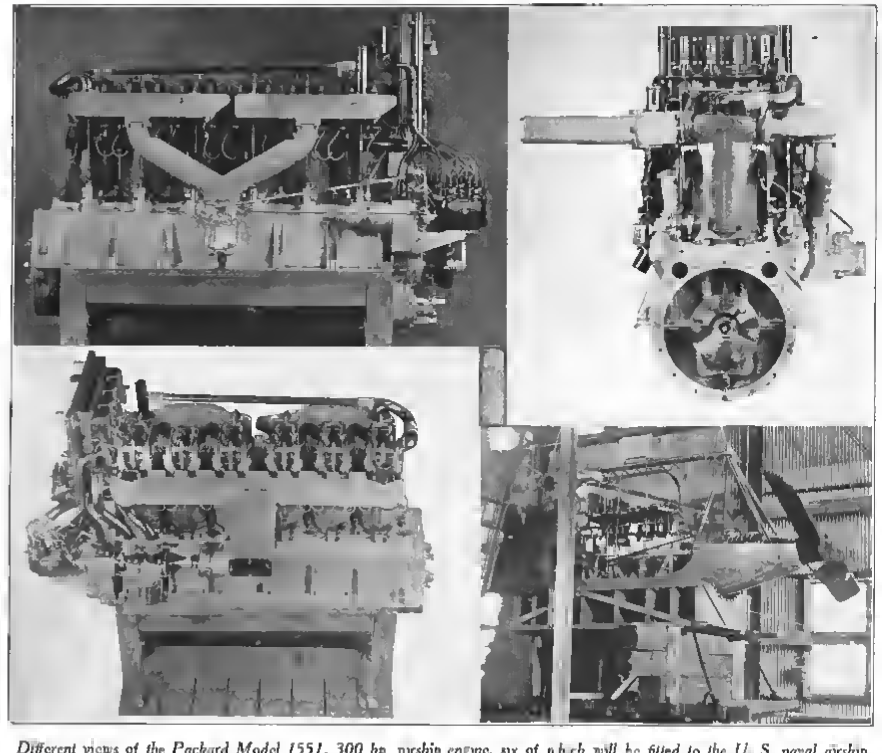
The throttle control unit constitutes a semi-automatic means for controlling the engine. It is linked to the carburetor throttle and a tension spring is arranged to return the throttle to the idling position unless the throttle detent is engaged with the throttle sector, which results in locking the throttle in any position in which it may be left by the operator. In order, however, to have this detent stay engaged it is necessary to have a sufficient oil pressure built up on the back of the diaphragm which is mounted in a casing behind the control board, to overcome the pressure of the spring surrounding the plunger which extends through the control board. This spring requires over 25 lb. oil pressure to move the plunger all the way out. This means that should the engine be running without an operator holding the throttle in place it will automatically throttle itself down to idling speed should the oil pressure drop to less than 25 lb. at any time due to lack of oil, burnt out bearing, broken connection or any similar failure. This same mechanism will return the throttle to idling position should the engine race at any time over 1500 r.p.m.

The purpose of the governor is to prevent the engine exceeding a predetermined speed in the event of the propeller breaking, clutch disengaging or slipping, or any similar accident which might relieve the engine of part or all of its load. The governor is of the centrifugal type and is driven by a gear meshing with the inlet cam shaft gear, the governor shaft projecting through the front of the timing gear case and driving the inlet ignition distributor. This governor functions by cutting off the supply of oil to the automatic throttle control and in this manner causes the automatic control to bring the engine down to idling speed in the same manner as when the oil pressure is reduced due to any other cause.

The ignition system is of the battery generator type in which the battery furnishes the source of current for starting and slow speed running, and at higher speeds the battery is "floated on the line" being charged by a generator which is run off the end of the pump shaft. The distributors are of the closed circuit type. Two double distributors are used on each engine giving four simultaneous sparks to each cylinder.

The Model 1551 cylinder is composed of a series of steel forgings welded together with a sheet metal water jacket surrounding the cylinder barrel. The complete cylinder is machined and ground on all important surfaces so as to constitute an interchangeable unit. Extraordinary rigidity is obtained in the cylinder head by pressing a thick steel plate over all four valve ports, this plate being then welded in place, making a girder reinforcement for the cylinder head. The rocker arm supports are forged integral with the interchangeable inlet and exhaust port flanges and these supports or brackets are further strengthened by the rods extending across the cylinder.

The model 1551 engines have been especially designed to facilitate the removal of individual cylinders in case of necessity. The cylinders are held down on the crankcase by means of four cap screws which screw into the heads of the main bearing bolts.



Different views of the Packard Model 1551, 300 hp. airship engine, six of which will be fitted to the U. S. naval airship ZR1, under construction at Lakehurst, N. J. In the lower right hand corner the engine is mounted in a set-up for testing

Rules Governing the St. Louis Air Races

Jointly Issued by St. Louis Air Board and Flying Club of St. Louis Under N.A.A. Sanction

As was briefly announced in a previous issue of AVIATION, the St Louis Air Board and the Flying Club of St Louis are jointly organizing an international flying meet on Oct. 1, 2 and 3, 1923, in St. Louis, Mo. The meet is sanctioned by the National Aeronautic Association of U S A and will be held under the general rules of the International Aeronautic Federation (F.A.I.) and those of the contests indicated below. The executive sporting authority of the meet will be vested in the Contest Committee, Flying Club of St. Louis. The meet will comprise eight events, the outstanding of which will be the fourth annual contest for Pulitzer Trophy.

Synopsis of Events

Event No. 1 will be an "On to St. Louis" Race which will be open to all planes flying to St Louis between Sept. 20 and 30 from a minimum distance of 200 miles. To stimulate interest among civilian pilots, Army, Navy and Air Mail planes will be barred from this contest, awards for which will be made on the basis of total elapsed time, distance covered, passengers carried and engine horsepower, as specified below. Cash prizes to be awarded total $1,000. Entry fee—None.

Event No. 2, the Flying Club of St. Louis Trophy Race, to start 11 a. m. Monday, Oct. 1, will be for civilian pilots flying two-seater airplanes fitted with a 90 hp. engine or less. Total distance to be covered is 150 kilometers (93 miles)—three laps of the triangular 50 kilometer race course over which all airplane events will be run and which is shown in the accompanying sketch map. Cash prizes to be awarded total $1,000. Entry fee = $100.

Event No. 3, the Liberty Engine Builders' Trophy, will be competed for the same day by 2-seater observation type planes of not less than 90 m.p.h. high speed over a distance of 300 kilometers (six laps). This event is open to civilian and government pilots alike. Cash prizes total $1,500. Entry fee = $100.

Event No. 4, the Aviation Country Club of Detroit Trophy Race, Tuesday, Oct. 2, will be a handicap event for light commercial planes of not less than 80 m.p.h. high speed and carrying two or more passengers besides the pilot with a maximum horsepower of 200 (piston displacement limited to 750 cu. in.). This event will be restricted to civilian pilots, and will be run over a distance of 250 kilometers (five laps). Cash prizes total $2,000, equally to be divided for speed and efficiency as specified below. Entry fee = $100.

Event No. 5, the Merchants Exchange of St. Louis Trophy Race, to be held the same day as Event No. 4, will be open to civilian and military pilots flying large capacity planes of not less than 2000 lb. *pay load* and 85 m.p.h. high speed or more. Total distance to be covered is 300 kilometers (six laps). Cash prizes total $2,000. Entry fee = $100.

Event No. 6, the Mahaffie Model Trophy, also scheduled for Oct. 2, will be open to members of the Junior Flying League of the National Aeronautic Association using hand launched model airplanes with rubber strand motors. Cash prizes total $300. Entry fee = $2.

Event No. 7, the Detroit News Air Mail Trophy Race, on Wednesday, Oct. 3, will be restricted to U. S. Air Mail pilots flying regulation planes of the U. S. Air Mail Service.* The competing ships must have a high speed greater than 90 m.p.h. and carry a pay load of 800 lb. or more.* Total distance to be covered is 300 kilometers (six laps). Entry fee = $100.

Event No. 8, the Pulitzer Trophy Race, will, as in previous years, be an international speed event and is also to be held Oct. 3. Competing ships must have a high speed greater than 175 m.p.h., a stalling speed not exceeding 75 m.p.h., and a safety factor of 7½ as landed for the race. Total distance to be covered is 200 kilometers (four laps). Cash prizes total $4,000, and gold, silver and bronze plaques will be awarded pilots finishing first, second and third. Entry fee = $100.

Some additional events are under consideration, but will not be announced until later.

Free entries, that is, entries upon payment of the fee stated in connection with each event, close Sept. 25, 1923. The entry fee will be refunded if the contestant is in his allotted place and starts in the contest, provided entry is received before Sept. 1. Entries received after Sept. 1, but prior to Sept. 8, will be penalized 25 per cent, and entries received after September 8, but prior to Sept. 15, will be penalized 50 per cent. After Sept. 15 entries will only be accepted with the written consent of all other entrants and the entry fee will not be refunded.

Full particulars regarding entries, rules and prizes for the different events and entry blanks may be obtained upon application to Contest Committee, Flying Club of St. Louis, 511 Locust Street, St. Louis, Mo.

The more important particulars of the rules governing the various events of the St. Louis Air Races are reproduced below from the Rules and Entry Blank jointly issued by the St. Louis Air Board and the Flying Club of St. Louis. All events will, however, be governed by the following rules:

"Qualifications—No airplane may take part in the contest unless it is piloted or commanded by a pilot who must be on board and who must be furnished with a license issued by the Contest Committee of the National Aeronautic Association (F.A.I. Rules, Art. 67). Every person furnished with a pilot's certificate of F.A.I. must obtain license issued optionally by Contest Committee, N.A.A. (F.A.I. Rules, Art. 70). License will be valid until Dec. 31 of current year. Withdrawal of license for incompetence of pilot, see F.A.I. Rules, Art. 123.

"Disqualifications—Any contestant breaking the rules of the race, or subsequent ones which may be sent out in writing by the Contest Committee, shall upon recommendation of the judges be disqualified. Every person organizing or taking part in a sporting event of whatsoever nature is required '(1) To know the present regulations (F.A.I. Rules) thoroughly.' (2) 'To agree to submit without restriction to the consequences that result therefrom.' (F.A.I. Rules, Art. 7.)

"Protests—No protest shall be considered unless presented in writing to the Contest Committee of the Flying Club of St. Louis within twenty-four hours after the finish of the race. (F.A.I. Rules, 78, 79, 80.) (Appeals, see F.A.I. Rules, Art. 178-179.)

"Numbers—Each plane shall have a number assigned to it by the Contest Committee, which shall be painted on the bottom surface of lower wing and on each side of the fuselage, clear of the wing, in characters as large and clear as possible. It shall have no other numbers or lettering over 12 in. in height.

"Advertisements—Competitors are forbidden to display on their aircraft or material any commercial advertisement except the trademark of the constructor of the aircraft. (F.A.I. Rules, Art. 89.)"

The following racing rules apply to all events, except to the "On to St. Louis" Race, but rule (c) does not apply to the "Jennie race" for the Flying Club of St. Louis Trophy.

(a) A plane overtaken must hold its altitude and a true course, in order that it may not in any way impede or interfere with a faster overtaking plane.

(b) A plane overtaking a slower plane shall never pass or attempt to pass between that plane and any pylon or captive balloon marking a turning point.

(c) Pilots must attain the altitude of the basket of the captive balloon each lap, and in passing shall do so to either side in order that the observers in the basket may clearly see the airplane's number. Any pilot not having sufficient altitude upon reaching the balloon shall continue to climb, but must make a circle so that when passing the balloon a second time the airplane will be headed in the line of flight of the course.

(d) After crossing the finishing line, all planes shall continue on their course until they have attained the altitude of 1000 ft.—except in the contests for the Liberty Engine Builders' Trophy and the Pulitzer Trophy, where the obligatory altitude is 2000 ft.—then they may turn and return to the Field, and land in that part of the Field assigned for landing and in so doing shall not cross the course of finish line.

(e) All pylon turns will be made to the left.

(f) Pilots shall pass outside all turning points and in plain view of officials stationed at each point, and at an altitude of not more than 400 ft.

(g) Fouling a mark.

"Any competitor who has failed to turn a stake properly may validly continue on the circuit provided he makes a complete turn of the said stake and then continues his trip in the same direction." (F.A.I. Rules, Art. 115.)

(h) "Contestants in making a turn must pass completely outside the pylons taking them always on the same hand which will be indicated by the rules." (F.A.I. Rules, Art. 114.)

(i) "In the case of open or closed circuits with re-entrant angles, contestants will be required to turn the pylon on the side of the vertex of the angle." (F.A.I. Rules, Art. 114.)

(j) In order that aircraft may be credited with having rounded the pylon it must have completely traversed the line bisecting the angle of this pylon and its vertex. (F.A.I. Rules, Art. 140.)

(k) No contestant shall be permitted to "dope" the fuel with picric acid, ether, or similar highly explosive liquids. Anti-knock fuels, such as benzol, may be used.

The authorized English translation of the F.A.I. rules is contained in the Aero Club of America Rule Book, published last year, which governs all sporting events sanctioned by the Contest Committee, National Aeronautic Association, insofar as they have not been modified or rendered void by subsequent decisions of the International Aeronautic Federation.

The following provisions are specific to each of the events named:

"On to St. Louis" Race

St Louis Chamber of Commerce Trophy

Open from Sept. 20 to 30, 1923, to civilian pilots only. Competing planes must be flown from a point 200 miles or more (air line) from St Louis Field, Bridgeton, Mo.

In view of the wide variety of planes whose owners have signified their intention of entering this event, the Contest Committee, after thorough deliberation of all means by which a contest may be judged fairly, will base its findings and award prizes according to the following four rules.

1. AVERAGE SPEED BASED ON TOTAL ELAPSED TIME.

Average speed will be determined by dividing the air distance between points of departure and St Louis Field, Bridgeton, by total elapsed time. No points will be awarded for average speeds of less than 50 m.p.h.

The maximum number of points to be awarded on average speed per hour is 100. A plane making the flight at an average speed of 150 m.p.h. will be awarded 100 points, and for each mile per hour less than 150 m.p.h., one point less will be awarded.

2. DISTANCE COVERED.

In order that pilots flying from distances greater than 500 miles may not be penalized by having to land and take on extra fuel with the resultant reduction in average speed, based on elapsed time, the following points will be awarded on total air line distance covered:

Planes starting at a point 500 miles from St. Louis Field will be awarded no points.

Planes will be awarded 10 points for each additional 100 miles (above the 500 miles specified). If the distance covered by a contestant falls between two of the recognized (100 mile) distances, he shall be allotted the distance nearest to which his actual flying distance falls.

3. PASSENGERS CARRIED.

Planes will be awarded 10 points for each passenger carried, the maximum number of points to be awarded being 100 (10 passengers).

4. ENGINE HORSEPOWER.

A maximum of 200 points will be awarded to the plane completing the flight propelled by an engine of 30 hp. or less. For every 10 additional horsepower of the power plant 5 points less than the maximum will be awarded, the minimum (for 400 hp.) being 15 points.

The horsepower will be that obtained from the McCook Field report for that make of engine at its normal r.p.m. regardless of the make or size of propeller, carburetor or other accessories used. No claim may be made against poor fuel, loss of r.p.m., etc.

This contest is open to any make or type of aircraft. The flight may start at any time after Sept. 20, 1923, but must be completed on or before midnight, Sunday, Sept. 30, 1923.

Pilots will carry a log book, in which they will register number of passengers, engine horsepower, point of departure and time of departure (in hours, minutes and seconds). Passengers will be required to sign the log of flight at the time of departure and upon landing. The above information and signatures must be witnessed in the log book and bear the signatures of two responsible persons, which shall be either Representatives of the National Aeronautic Association, Notaries Public, Mayors, Newspaper Editors, or officers now active in the military service of the United States (Army, Navy, or Marine Corps). This log must be kept in *ink or indelible pencil.*

The contestants will indicate if the time mentioned in landing is in accord with that of the place of departure such as Eastern, Central, Daylight Saving, etc., and give the date, also whether a. m. or p. m.

Prizes will be awarded on the total number of points received by contestants. First prize will be $500.00 in cash and a silver loving cup. Second prize will be $250.00 in cash. Third prize will be $150.00 in cash. Fourth prize will be $100.00 in cash. In case of a tie the winner will be determined by lot. The decision of the Contest Committee of the Flying Club of St Louis is final.

Pilots are urged to report by telegram to the Contest Committee of the Flying Club of St Louis, Mo., when they expect to depart, forced landings, temporary or permanent disability and particularly if delay compels their arrival at night.

(To be continued)

World's Records Broken

Seventeen world's records for seaplanes, most of them in new events, were established at San Diego, Calif. by naval fliers on June 6 and 7, when the tests were concluded.

Lieut. H. E. Halland, piloting an F5L plane lifted a recognized load of 2,000 kg. to a height of 5,200 ft. Lieut. Ralph Ofstie, in a single-seater T5 plane, rose to a height of 18,400 ft. where he encountered a temperature of 2 deg. below zero. The atmosphere was so rarified that the air in the pontoons of the machine was sucked out and when the plane began to descend the exterior pressure caved in the pontoons. Lieut. Earl Brix, ascending in a torpedo plane to 12,505 ft. carried a recognized load of 250 kg. and thus made a record. Several other naval aviators made remarkable altitude flights in planes carrying heavy weights.

The only speed test of the day, flown in competition, was won by Boatswain E. E. Reber, who piloting a torpedo plane with a 400 hp. Liberty motor, made an average time of 102.85 m.p.h. for three different laps.

In an attempt to break his own record for endurance in a single motored seaplane, Lieut. M. A. Schur, U. S. N., established a new world record for endurance at San Diego, Calif. on June 13. The endurance flight was made in a standard type of Navy torpedo plane, the DT2. The record established was for 11 hr. 16 min. 59⅘ sec. over a distance of 1275 kilometers.

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*At the date of writing the U. S. Air Mail Service has only one plane capable of fulfilling these conditions namely the De Haviland No. 288 (or "Mail M" which is equipped with the Aeromarine high lift wing. However, several ships now in process of development for night flying which are to be commissioned during the summer will, it is expected, easily meet these pay load requirements, although some are not fitted with the Liberty engine.—EDITOR.

The Value of Barrage Balloons *

BY CAPT. G. FONTAINE

Chef of Bureau of Anti-Aircraft Defense, French Air Service

Airplanes in order to reach, during the night, an objective at a great distance, find in space a beaten path that is fixed by marks on the ground, and even navigation by compass does not entirely obviate orientation by marks along their route.

The routes followed by aircraft are, in general, well defined. Either airplanes follow a route parallel to general lines of the terrain, water courses, railroads, etc., or they orient themselves on characteristic points, junctions or rivers, woods, etc., in the same manner as navigators on the ocean search for signal lights. The location of these routes is made by the Service of Information of the Anti-aircraft Defense, which utilizes for this purpose all information received concerning the routes used by enemy airplanes which have penetrated their territory, such as reconnaissance and bombardment aircraft.

The knowledge of these routes is indispensable in order to prepare upon the ground a judicious distribution of the "active means" of anti-aircraft defense, cannons, machine guns, searchlights, etc. It is even more necessary for the location of the "passive means" of defense against aircraft, whose direct purpose is to obstruct these routes.

Numerous passive obstructions have been conceived: metallic cables raised and maintained in the air by kites; cables shot into the air from cannons (a project only); cables dropped by airplanes and maintained in the air by parachutes; metallic cables supported by balloons, etc.

Experience, however, is more conclusive than theory. We have seen from experience that in the region of Nancy from the time that certain points were defended by barrage balloons, German aviators did not descend a single time below the maximum altitude of these balloons.

The immediate effect of barrage balloons is to detour enemy aviators from their habitual routes and force them to seek altitude, thus contributing to diminish the frequency and precision of bombardments.

Barrage balloons to be effective should be employed exclusively at stations of small area. One can conceive that an objective surrounded entirely by balloons, mounted in tandem, could not be subjected to bombardments except from an altitude in excess of 11,500 ft., and, therefore, has nothing to fear due to the lack of precision of the bombardment and the dispersion of the points of impact except from very rare and unfortunate hits.

On the contrary, the utilization of barrage balloons for positions of large area and for large cities in particular is a complete error. In fact, a bomber would be indeed inexperienced and foolish to arrive over a large objective at an altitude less than 16,500 ft., if for example his objective was Paris. Moreover, the enemy could force the employment of barrage balloons in the proximity of defensive points. It will be necessary to experiment with the effect of surprise by placing unexpectedly barrage balloons across the route frequently traveled by enemy aircraft at points where no warning has been given of their presence and where the enemy are known to habitually fly at low altitudes. A squadron flying into a barrage of these balloons arranged in groups of five, for example, would almost certainly lose most of its aircraft. This mission of surprise should be confined to particularly mobile balloon elements.

The employment of barrage balloons such as we have just described, permits the realization of economy in the distribution of "active means" of anti-aircraft defense. This is their principal utilization.

The distribution should, therefore, be made as follows: to armies, nearly all of the anti-aircraft artillery mounted on automobiles, and automatic cannon for low flying aircraft. It is understood that the troops of the line provide their own defense with their own machine guns. For the defense of sensitive points the following organizations in order of importance: for objectives of small area, belt of barrage balloons, with small machine guns in case inclement weather prevents utilization of barrage balloons; for more important objectives, anti-aircraft artillery in position and searchlights for night fire. In case of need, automatic cannon, especially when low altitude attacks are feared. And finally upon the aircraft routes far from sensitive points, strong organizations of night pursuit aircraft, and searchlights and barrage balloons.

*This report from the Military Attache in France was furnished by *The Coast Artillery Journal* through the courtesy of the Military Intelligence Division, War Department General Staff.

Mishap of Dewoitine Light Plane

The Dewoitine light plane fitted with a 15 hp. Clerget engine which Georges Barbot demonstrated for the first time in America on June 1 at Roosevelt Field, Westbury, L. I., on June 4 made its first cross country flight in this country. Piloted by Barbot and convoyed by Air Mail Pilot R. H. Pearson, the little ship was flown from Roosevelt Field to West Point, N. Y., where it was proposed to give a demonstration to the officials and cadets of the Military Academy. Barbot did not, however, land at West Point, as he considered the landing field there to be too small, but he gave a 15 min. demonstration of gliding and power flying over the Military Academy, after which he returned with his convoying plane to Roosevelt Field. The field at West Point is about 1000 ft. long but as it is surrounded by trees, the French flier did not think it advisable to land there for his little ship has a tendency to float a certain distance before landing, particularly when a wind is blowing.

On June 6 Barbot took off from Roosevelt Field enroute for Washington, D. C., convoyed by Lieut. F. B. Valentine, A. S. A strong wind was blowing, which considerably slowed down the progress of the little craft, for it reached the Curtiss Flying Field at Pine Valley, N. J., four hours after its take-off. At 1:20 p. m. Barbot resumed his journey to Washington alone, as his convoyer, Lieutenant Valentine had a forced landing about a mile from Pine Valley, where he damaged his landing gear to such extent that he could not continue his journey. Barbot expected to stop at Aberdeen Proving Grounds, and then to proceed to Bolling Field, D. C. Unfortunately, when over Paulsboro, N. J. his engine conked out, said to be due to water in the gasoline, and in the gusty weather Barbot made a rather rough landing in a small field surrounded by trees. In trying to make the field, one wing bit a tree top, hung there an instant and then dropped to the ground. One wing was rather badly damaged, but the pilot was unhurt.

The machine has since been shipped back to Roosevelt Field, where it will probably be repaired in view of further demonstration flights.

U. S. Aircraft Exports

According to the monthly statement issued by the Department of Commerce, during the month of March, 1923, the following aircraft, aero engines and parts were exported from the United States:

One airplane to Mexico, value $1,500; two airplanes to Argentina, value $9,318; aircraft engines, value $445; parts, value $2,941.

Book Reviews

LES HELICOPTERES. By W. Margoulis, formerly director of the Eiffel Laboratory. 91 pp., 21 ill. (Gauthiers-Villars & Cie., Paris.)

This is the first modern work on the theory and the practical applications of the helicopter or direct lift machine. The author conducted exhaustive experiments with propellers at the Eiffel and Saint-Cyr laboratories and the results of this investigation are given in this interesting book, together with a theory of helicopter flight in the horizontal and vertical planes, and stability of the direct lift machine.

MOEDEBECK'S TASCHENBUCH FUER FLUGTECHNIKER UND LUFTSCHIFFER. Fourth edition, compiled and edited by R. Surling and K. Wegener. 920 pp. 326 ill. (Verlag Von M. Krayn, Berlin.)

Moedebeck's Pocket Book was probably the earliest compilation which gave ample diversified and reliable information on the subject of aerotechnics. The fourth edition, the size of which may be gaged from its nine hundred odd pages of pocket format, had the benefit of receiving the collaboration of nineteen German specialists each of whom is an expert in his own particular field.

The scope of the book will be apparent from the following enumeration of its chapters, together with their respective authors: I. Physical Properties of Gases, by R. Emden; II. Physics of the Atmosphere, by A. Berson; III. Practical Weather Forecasting, by Kurt Wegener. IV. Aerology, by Alfred Wegener; V. Aerodynamics, by C. Wieselsberger and A. Betz; VI. Photography and Photogrammetry, by E. Ewald; VII. Elementary Navigation of Aircraft, by K. Bassus; VIII. Orientation, by A. Wedemayer and O. Nairz; IX. Engines and Propellers, by Otto Schwager; X. Mechanics of the Flying Machine, by E. Everling; XI. Airplane Construction, by H. G. Bader and A. R. Weyl; XII. Airplane Piloting, by Kurt Wegener; XIII. Motorless Flight, by W. Klemperer; XIV. Airship Construction, by W. A. Dorr, W. Bleistein and A. Stelling; XV. Airship Piloting, by K. Breithaupt; XVI. Spherical Balloons by R. Suring.

Although this book contains a remarkable amount of useful information, much of this applies to specific German conditions, such as in airplane and airship construction, little reference being made to non-German products, or methods. Nevertheless, the book is well worth reading.

SUR LA THEORIE DES SURFACES PORTANTES. By Maurice Roy. 132 pp. 59 ill. (Gauthiers-Villars, Paris.)

This book deals with what is called in Germany the Aerofoil Theory (Tragflugeltheorie) and covers the latest results obtained in this domain. The first part contains elementary notions of hydrodynamic theory and the fundamental principles of Aerofoil Theory, with some particular reference to the Joukowski aerofoils. The second part shows the applications of a simplified form of the theory as presented by Prof. L. Prandtl to the Scientific Society at Goettingen in a paper not generally known.

Seaplanes for Amundsen's Relief

Aircraft are assigned an important role in the relief expedition which has been organized in behalf of Captain Amundsen in his proposed trans-polar flight from Wainwright, Alaska, to Spitzbergen, late in June. Two Junkers float monoplanes equipped with radio sets were shipped June 10 from Hamburg to Christiania, whence they are to fly to Spitzbergen, there to await news from Amundsen. Professor Wegener, the German meteorologist, is accompanying the expedition to make meteorological observations.

It is also reported that two other seaplanes which were carried to Spitzbergen on board the steamer Flint have been assembled there and are being put in shape for a relief flight on instant notice. Herr Hammer, German Consul in Christiania, who is arranging the relief expedition for Amundsen, left Hamburg for Christiana on June 10 in a seaplane with two German airmen.

Amundsen's friends who are concerned with his safety claim that the Junkers plane on which he proposes to fly over the North Pole is an old and almost worn out machine. They also point out that inasmuch as Amundsen's course will come within close vicinity of the magnetic Pole, it is to be feared that this may affect his compass to the extent of making it undependable.

The Wind Factor in Flight

AVIATION published some time ago a synopsis of a study made by Willis Ray Gregg, meteorologist, and Lieut. J. Parker Van Zandt, A.S. of the wind factor in flight on the basis of one year's operation of the U. S. Air Mail Service.

This study was presented in the form of a paper before the American Meteorological Society at Washington, D. C., and has just been published in full in the March, 1923, issue of *Monthly Weather Review*, issued by the U. S. Weather Bureau. The methodical care with which this paper was prepared, may be gathered from the inclusion such tables as giving the average speed on transcontinental airway per section and per month, with averages for the four seasons and the year; percentage of flights westward and eastward at given speeds; average and maximum delay for flights that failed to arrive on schedule; meteorological conditions on days when highest and lowest speeds were made; number and percentage of flights made from New York to Chicago at different average speeds, etc. Some excellent graphs are also included, some of which show the schedules that can be guaranteed 90 per cent of the time between New York and Chicago for speed up to 150 m.p.h.

This brief and necessarily incomplete outline shows the importance of Messrs. Gregg and Van Zandt's paper from the viewpoint of air line operation. Copies of the *Monthly Weather Review* can be had from the Government Printing Office, Washington, D. C., at 15 cents a copy.

Aeronautical Patents

Granted May 15, 1923

1,454,944. System of Helicopter Screws. Paul Pateras Pescara, Barcelona, Spain.

1,454,967. Screw Propeller and Similar Appliance. James Herbert Wainwright Gill, Norfolk, England, assignor to Gill Propeller Co. Ltd., King's Lynn, England.

1,454,977. Metal Propeller for Aeroplanes, Dirigibles, Balloons, and the Like. Thomas Middleton, Schenectady, N. Y.

1,454,990. Bomb Throwing Device for Aircraft. Oscar Wilcke, Friedrichshafen, Germany, assignor to the firm Luftschiffbau Zeppelin Gesellschaft mit beschrankter Haftung, Friedrichshafen, Germany.

1,455,352. Helicopter. Albertus Overbeek, Weltevreden, Java, Dutch East Indies.

1,455,427. Aeroplane. Joseph Chocko and Michael Dykas, Chicago, Ill.

1,455,442. Propeller for Aerial Machines. Robert Lepar-mentier, Bordeaux, France.

New Laird Commercial Plane

The E. M. Laird Airplane Co. of Wichita, Kansas, manufacturers of the famous "Laird Swallow," has developed a five-passenger ship to be operated on a line between Kansas City and Wichita. The ship is a biplane equipped with one 400 hp. Packard motor, duel depth control ahreast. The cabin provides space for five passengers, and back of the cabin is a baggage room for carrying 30 lb. of baggage for each passenger. The Kansas City-Wichita journey is 2 hr. 10 min. This ship on her test, full loaded, remained in the air 3 hr. It is expected that the ship will be exhibited in Kansas City this spring.

"Laird Swallows" have heretofore been equipped with Curtiss OX5 motors, but Mr. Laird has taken the Swallow and equipped it with a 150 hp. Hispano. The additional horsepower has given the ship a greatly improved performance.

AIRPORTS AND AIRWAYS

Flying over New York

The Merchants' Association of New York recently wrote to Police Commissioner Enright complaining of the danger of permitting airplanes to fly low over large crowds, and asked him whether there was any regulation applicable.

The Secretary of the Commissioner, in replying to this question calls attention to an ordinance passed in 1921 which is still in force in the absence of any national law on the subject.

This ordinance relates to the flying of aircraft over the City of New York. After defining aircraft, it regulates their use as follows:

Section 3. No aircrafts in the air over the limits of The City of New York shall be guided or controlled by the pilot in a manner designed to give any demonstration or trick flying or aerial acrobatics or be given any manipulation of the controls which may tend to divert the aircraft from a normal flight with every consideration for stability and safety.

Section 4. No aircraft shall fly over any part or section within the limits of The City of New York at a height lower than that enabling such aircraft to glide in any emergency and at all times to a known established or recognized open or unobstructed place on land or water, nor shall aircraft under any circumstances on occasion, special or otherwise fly at a height lower than 2,000 ft. except at the beginning or end of a flight in accordance with the provisions and limitations of this ordinance and when not within gliding distance of a recognized or a known established or recognized field or place of landing.

Section 5. No person in aircraft shall cause or permit to be thrown out, discharged or dropped any ballast, instruments, tools, containers, hand bill, circular, card or other matter whatsoever unless it be directly over a place established for that purpose, and all equipment carried in aircraft shall be securely fastened in place before leaving the ground.

Section 6. Aircraft approaching each other head on from opposite or different directions each shall alter its course to the right in passing.

Section 7. Lighter-than-air craft shall at all times have the right of way over heavier-than-air craft.

Section 8. Every person violating the provisions of this ordinance shall be guilty of a misdemeanor and upon conviction thereof shall be punished by a fine of not less than fifty dollars ($50) or imprisonment not exceeding one year, or both.

In this connection it is of interest to reproduce the following news item which appeared in the *New York Times* of June 11:

"An airplane, flying so low over the Bronx that the roar of its exhaust drew the attention of the entire neighborhood to the building about which it was circling, was responsible for the discovery of fire in the tenement house at Prospect Avenue and Fox Street yesterday afternoon.

"The plane swooped down suddenly from an altitude of several thousand feet until it was almost touching the roof of the tenement. It was then that the crowd noticed smoke pouring from the building. As soon as the fire apparatus began to arrive the plane climbed into the clouds and disappeared."

Again, on Saturday, June 16, a very ancient De Haviland-6 two-seater plane flew repeatedly over Manhattan Beach, near Sheepshead Bay, L. I. at a height varying between 300 ft. and 500 ft., distributing hand bills. The ship had no distinguishing marks, save the words "Frozen Joy" painted on the bottom plane. The engine, judging by its sound, was apparently a Curtiss OXX. It must be said to the credit of the pilot that he performed no stunts, contenting himself with straight flying.

Dedication of Rosecrans Field

The dedication of Rosecrans Field, the new municipal airport of St. Joseph, Mo. which took place on May 12 last, was attended by more than a thousand persons. Eighteen planes, including six Air Service DH4B's from Fort Riley, Kan. under the command of Capt. Thomas Boland, were on the field for the opening. The field was formally dedicated to Guy Wallace Rosecrans, only St. Joseph man to lose his life in the Air Service during the World war. Mr. and Mrs. F. G. Rosecrans parents of the dead soldier, were guests of honor.

Maj. Howard F. Wehrle of Kansas City, governor of the National Aeronautic Association, was the principal speaker. Carl H. Woolley, chairman of the aviation committee of the Chamber of Commerce of St. Joseph, was master of ceremonies. Mayor McIntosh and Captain Boland also spoke.

Following the addresses, a Laird "Swallow" piloted by K. R. Garver of the Garver Air Circus, was christened as the first official plane to leave the Rosecrans Field. The plane then took to the air, followed soon after by an Army ship carrying Mayor McIntosh. From then on the air was full of planes, some carrying passengers and others performing stunts for the benefit of the spectators.

The pilots of the Air Service DH4B's were, in addition to Captain Boland, Lieuts. R. E. Nowland, Benjamin F. Griffin, H. C. Wisehart and J. D. Barrigar, and Sergt. C. A. Gilbert.

The civilian visitors included a party of ten in four ships from Kansas City as follows:

Curtiss H. 150 hp. Hispano-Suiza, Ben Gregory, pilot, J. B. Harvey, manager Richards Field, passenger; Charles Quinn, relief pilot.

Lincoln-Standard, 150 hp. Hispano-Suiza, J. V. C. Gregory, pilot, Charles Officer, passenger.

Lincoln-Standard, 150 hp. Hispano-Suiza, Lewis Oower, pilot; Mrs. Gower and John Sandifer, passengers.

Curtiss Oriole, 90 hp., G. B. Monrose, pilot; A. Gunn, passenger.

Other planes included one from Denver, which brought H. N. Shafer and George Morbut, two from Attica, Kan., bringing Mr. and Mrs. K. R. Garver and Wayne Neville, and the planes of Vernon Boyd and Williams brothers of St. Joseph.

Canadian Airports

The Royal Canadian Air Force advises that the following changes have occurred in Airharbor Licences during month ending May 31, 1923:

Airharbor License No. 57 was issued May 18, 1923, to the Dominion Aerial Exploration Co., 786 King St. West, Toronto, Ont. for a commercial seaplane station (over 800 yd.) situated at Chicoutimi, P.Q., on Saguenay River, at mouth of Chicoutimi River.

Airharbor Licenses for (1) a commercial airdrome at Hanna, Alta. issued to Holbrook & MacLeod, (2) a public customs airdrome at St. Laurent, P. Q., issued to the Canadian Division to the Aerial League of the British Empire, and (3) a commercial seaplane station at Chicoutimi, P. Q., issued to Price Bros. & Co. Ltd. have been cancelled. The latter License is superseded by Airharbor License No. 57, above mentioned.

Hartney with General Airways System

Harold H. Hartney has joined Stephen J. McMahon and Fritz Cremer in the formation of the General Airways System, with headquarters in Washington, D. C., which was incorporated May 20 with a capital of $10,000,000, all in common shares of $10 par value.

The company plans to engage in all air transport activities, but not, for the present, in aircraft construction. It has made a contract with the Gray Corp. for the handling of securities and investments of the company.

Boston Airport

Porter Adams, vice-president of the First District N.A.A. advises AVIATION that the first official landing at the new Boston Airport was made June 5 by Lieut. R. C. Moffat, A.S. carrying Dr. James T. Williams, Jr. of the Boston *Transcript* as his passenger. The runways are still being rolled but the field is available for emergency use at the present time and it is probable that it will be completed by June 20.

Transporting Cotton by Airplane

During the Shriners Convention in Washington the Army Air Service gave an impressive demonstration of the rapidity with which a commercial project can be successfully carried out through the medium of the airplane. This project involved the transportation of two bales of cotton from Augusta, Ga. to New Bedford, Mass., where the raw material was fabricated and cut up into Masonic aprons by the Wamsutta Mills, and delivered by airplane to Bolling Field, Anacostia, D. C., where they were distributed to the visiting Nobles.

The proposition of transporting a bale of cotton by airplane was initiated by the Army Air Service in cooperation with the Aeronautical Chamber of Commerce of New York, the Augusta Board of Commerce, through Spencer L. Hart, Secretary, and the Wamsutta Mills of New Bedford, through C. F. Broughton, Treasurer. The whole project was carried through as planned, and the Masonic aprons reached Bolling Field at noon on Tuesday, June 5, in time for the Chief of Air Service to make a formal presentation of them to the Imperial Council meeting at Keith's Theater at two o'clock.

Loading bales of cotton on board a Martin Bomber at Augusta, Ga., for transportation to the Wamsutta Mills at New Bedford, Mass.

Two Martin Bombers from the Aberdeen Proving Grounds, Md., were the transporting agencies. Leaving Aberdeen on the morning of June 1, the ships arrived at Augusta late that afternoon. The crew on board the ships were Capt. Romeyn B. Hough, Lieuts. Harold L. George, Wm. H. Bleakley, Carlyle W. Grayheal and Staff Sergt. Linwood P. Hudson and Peter Ceccato, all stationed at the Aberdeen Proving Grounds.

While at Augusta the Air Service personnel were accorded true southern hospitality. The two bombing planes with their cargo of two 500 lb. super-compressed bales of cotton, donated to the Augusta Board of Commerce by Barrett & Co., Inc., of Augusta, left that city at 4.30 a. m. June 4 for New Bedford, Mass. In addition to the cotton, one of the planes carried a basket of peaches, tendered President Harding by the people of Augusta. This plane made a brief stop at Aberdeen, Md., en route in order to allow the peaches to be transferred to a relay plane, piloted by Lieut. W. K. Phillips, and brought to Washington. The gift for the President arrived at Bolling Field at 3.39 p. m., and the Georgia Society of Washington made the presentation of same to the country's Executive.

Arriving at New Bedford shortly after five o'clock, the crew unloaded the cotton and made preparations for an early departure the following morning. At 5.50 a. m., June 5, both planes took off from New Bedford, the plane piloted by Captain Hough carrying some 5,000 aprons which the Wamsutta Mills had manufactured. A landing was made at Mitchel Field, L. I., N. Y., in order to refuel the ships. Mechanical trouble, however, developed in Captain Hough's ship, and it was necessary to transfer the cargo of aprons to Lieut. Bleakley's plane, which promptly took off and landed at Bolling Field shortly after the noon hour. H. Carl French, Purchasing Agent of the Wamsutta Mills, and M. L. Gates, a representative of the mill were passengers on board this ship, in addition to Lieutenant Grayheal and Staff Sergeants Hudson and Ceccato.

Upon landing, the aerial visitors were greeted by Maj. Gen. Mason N. Patrick, Chief of Air Service; Brig. Gen. Wm. Mitchell, Asst. Chief of Air Service; Maj. Ira A. Rader, Chief of the Information Division, Office Chief of Air Service, Maj. George E. Lovell, Commanding Officer of Bolling Field, Capt. R. L. Walsh of Bolling Field, and a number of Shriners.

Flying to Championship Bout

To meet the demand of the hundreds who will travel by air to the Dempsey-Gibbons fight at Shelby, Mont., July 4, the Standard Oil Co. (Indiana) has arranged for a string of gasoline stations to sell Aviation Gasoline and Aero Oil to pilots. A route has been mapped out from Chicago to Shelby, with stations placed at points where natural conditions make landing safe and easily accessible.

Perhaps never before in the history of pugilism have airplanes taken such a great part. The planes will not only carry passengers and baggage, but will be used by many newspapers and press organizations in transporting photographs of the fight for publication.

Cities that will be fitted out with aero stations include Chicago, Joliet, Rockford, La Crosse, Madison, Milwaukee, Winona, Minn., Minneapolis, Fargo, Valley City, N. D., Jamestown, N. D., Bismark, Williston, N. D., Miles City, Mont., Billings, Great Falls, Glasgow, Mont., Malta, Monta., Havre, Mont., and Shelby.

The arrangements for the gasoline supply are under the direction of Allan Jackson, Vice-President of the Standard Company.

Plane Boosts Boxing Bout

The organizers of the Dempsey-Gibbons boxing bout which is to be held at Shelby, Mont. July 4, recently used an airplane for distributing tickets throughout the State.

The ship, a Bréguet (300 hp. Renault), was piloted by Earle Vance and had been purchased for the promotion of the championship bout. Carrying as passengers Jim Johnson, mayor of Shelby, Maj. J. E. Lane, former State Senator and Lov Moulmby, state commander of the American Legion, the ship stopped at Great Falls, Lewistown, Billings and several smaller towns. Unfortunately, on June 12, while the ship took off from Livingston enroute for Helena, it was caught by a gust and blown against a telegraph pole, which caused it to strike the ground. The occupants of the plane suffered some injuries, but none was severely hurt. The ship was completely wrecked. The accident was apparently due to a poor landing field.

Aircraft Movements, Paris Airport

Statistics on aircraft movements at Le Bourget, the airport of Paris, France, indicate a considerable increase in passengers and freight carried. During the month of April, 1923, incoming and outgoing aircraft numbered 335 as against 435 for the same month of the previous year, but the number of passengers was 1242 as against 924, and the freight 72,264 kg. as against 34,583 kg.

Airport at Eldorado, Kan.

On June 22 and 23 there will be held at Eldorado, Kas., a flying meet to raise funds for a hangar for their field and terminal facilities. This is being backed by the Kiwanis Club of that city.

U. S. ARMY AND NAVY AIR FORCES

U. S. ARMY AIR SERVICE

From Texas to the Pacific

Capt W E Lynd, A S., commander of the 40th Bombing Squadron, 10th School Group, Kelly Field, Tex., accompanied by Master Sergt. Joseph E English, A S, also of the School Group, returned to the field May 21, after a flying trip of seventeen days, during which a number of airways were mapped out for cross-country flights During their flights Captain Lynd and Sergeant English covered some 5,500 miles and flew over some of the roughest mountain districts in the United States

Of the seventeen days spent on the trip, including fifty-seven hours of actual flying, the plane, a De Haviland 4B, had a tail wind only part of one and one half days. The rest of the time it bucked heavy head winds which impeded progress materially. The mechanism of the plane worked perfectly during the entire trip.

The only equipment carried by the flyers in addition to the regulation De Haviland 4B contents were seat pack parachutes worn by each while in the air

Starting from Kelly Field May 5, Captain Lynd and Sergeant English flew first to Post Field, thence to Denver, Colo., Cheyenne, Wyo., Salt Lake City, Utah; Boise, Idaho, Portland, Ore., Eugene, Ore., Redlands, Fresno, Los Angeles and San Diego, Calif.; Tucson, Ariz., then back to Kelly Field.

The flight from Tucson to Kelly Field possibly was one of the most noteworthy accomplishments of the flight in two days The entire distance was covered in nine hours, flying time, with one hour at Marfa, Tex., intervening In each leg of the journey Captain Lynd's plane accomplished a feat considered unique. Three hours is the rated time for the Liberty motor equipped De Haviland with 80-gal tank, yet Captain Lynd flew two 4½ hr. stretches on eighty gallons each and at the end of each of these flights fully ten gallons of gas remained in the tank. Thus the plane far exceeded its rated performance.

A thrilling experience encountered by the flyers was in the Cascades, between Burns and Portland, Ore., the plane being forced down twice by heavy rains and finally had to cross the crest of the range in a blinding snowstorm.

Kelly and Macready Bring T2 to Washington

Lieuts Oakley G Kelly and John A Macready, who recently accomplished the non-stop flight across the American continent from New York to San Diego, in the Army Fokker transport monoplane T2, arrived at Bolling Field June 1 from McCook Field. This was the last leg of their return journey from Southern California, which they made in easy stages with intermediate stops en route. These two officers hold jointly six official world's records in aviation, that is, sustained flight, long distance flight and speed over 2,500, 3,000 and 4,000 kilometers Lieutenant Macready besides has the distinction of holding the world's altitude record for airplanes

The T2, which they piloted on all their remarkable flights, was placed on exhibition at the Monument Grounds in Washington for the benefit of the Nobles attending the Shrine Convention in Washington

Aside from the great ovation accorded them by admiring Californians, Lieutenants Kelly and Macready on their return journey eastward were enthusiastically received at every stopping point, thus testifying to the heightened interest the public is now taking in aviation as the result of the world's supremacy American aviation has achieved through the annexing of all world records possible of attainment

In behalf of the Dayton Shrine President Harding presented the two aviators with watches on Wednesday, June 6.

Loss of Army Airship TC1

The Army Air Service airship TC1 was destroyed by fire shortly after it moored at Wilbur Wright Field at 6 p m. June 6 The ship was destroyed during a severe electrical storm after arriving in Dayton from Scott Field, Ill., on a test flight.

Sergt. Harry Barnes of Scott Field and A. C Maranville of Akron, representative of the Goodyear Tire & Rubber Co which built the ship, were injured when they jumped 40 ft. to the ground when the big bag caught fire. Barnes's ankle was broken and his knee sprained. Maranville suffered a crushed ankle and a sprained arm Both are in hospitals

The ship was flown to Dayton by a crew of ten men, commanded by Lieut. Clyde Kuntz. Lieutenant Kuntz and other members of the crew left the ship just before the accident.

The ship had been moored to a steel tower when it was caught in the wind and swung around, coming in contact with another steel post The bag was highly charged with electricity, and the connection with the two steel towers caused the explosion and fire, it is believed

Lightning struck another hangar at Wright Field, but little damage was caused

The TC1 finished its trial test flight over Scott Field on April 7 and was accepted by the Government

The TC1 was the largest semi-rigid airship ever built in America, though still larger ones are under construction now for use as airplane carriers The TC1 on April 9 last negotiated a successful flight of 500 miles from Akron to Scott Field at Belleville, Ind. In that long trip it maintained a speed of from 35 to 50 m p h. and navigated successfully in every respect

France Field

Practically all the officers and all the hangar chiefs of France Field were shown aboard the U S S Langley several days ago while she lay at anchor in Panama Bay After being taken around the ship to view the layout of this airplane carrier they all assembled on the plane deck of the ship, whereupon the "Navigators" staged a take-off and landing exhibition The Army fliers were greatly impressed by the keenness of the naval fliers, the A. S *News Letter* correspondent remarking that "they are among the best that come."

Captain Butcher, a Reserve officer on temporary active status spent the past few weeks at France Field, assisting the Operations Officer in his work. During that time he participated in several of our cross-country trips far into the interior He stated upon the termination of his tour of duty here that he was agreeably surprised at the cordial welcome he received while here as a Reserve officer, and he felt that the good old Air Service spirit as he knew it in the war days was still alive

The long-planned flight of two Martin Bombers took the week end trip to David, up near the Costa Rican Border, loaded to capacity with blankets, guns, suit cases, etc They reported that at Boquette, where they put up at "The" hotel, the temperature went way down to about 70 deg., and blankets were a necessity at night. Some went hunting for game, others dug about in the ancient Indian ruins for specimens of pottery.

Changes in Stations

The following changes in stations of Air Service Organizations are announced by the Adjutant General's Office.

17th Composite Group Hq—From Hawaiian Dept. to Wheeler Field, Hawaii.

19th Pursuit Sq—From Hawaiian Dept. to Wheeler Field, Hawaii

72 Bombardment Sq—From Hawaiian Dept. to Luke Field, Hawaii

Army Orders

First Lieut. Charles Douglas, A S, relieved from duty at Kelly Field; assigned to Ft Sam Houston, Tex., with Ordnance Dept.

Maj. George E. Lowell, jr., A S, relieved from duty at Bolling Field, to sail about Aug 4, 1923, from San Francisco for Honolulu, T H, for duty with Air Service troops

Leave of absence of one month and twenty-one days is granted Lieut Phillips Melville, A S, with permission to leave the continental United States and apply for extension

First Lieut Clifford Ellerman, A S, relieved from duty at Middletown A I D., Penn.; upon completion of duty with summer training camps at Richards Field, Kansas City, Mo., assigned to Ft. Riley, Kan., with Air Service troops.

First Lieut. Leslie P Arnold, A S., relieved from duty at Maxwell Field, to Bolling Field for duty.

First Lieut. David R Stinson, A S., relieved from duty at Bolling Field; to Middletown A I D for duty

First Lieut Edward M Morris, A S, relieved from duty at Middletown A I D., to Maxwell Field for duty.

Sec Lieut Francis B Kane, A S, relieved from flying training at Primary Flying School, to duty at Brooks Field

Capt. Robert Olds, A S, on duty in Office, C A S, is detailed as member of the Aeronautical Board, vice Maj Harvey B S Burwell, A.S., relieved.

Leave of absence of two months and fifteen days is granted First Lieut Wallace G Smith, A S

Maj Harold S Martin, A S, relieved from duty at McCook Field, to Sixth Corps Area for duty with Air Service

Staff Sergt George H Fuhrman, 7th Obs Sq, A S, relieved from duty in Panama Canal Dept., to Langley Field for duty.

Lt. Col. Seth W Cook, A S, relieved from duty at Kelly Field; to Ft Hayes, Ohio, with A S troops of Fifth Corps Area

Capt Rosenham Beam, A S, relieved from duty at Langley Field, to sail about Sept 22, 1923, from San Francisco for Manila, for duty with A S troops, Philippine Dept.

The appointment of Robert Boyd Williams as Second Lieutenant, Air Service, Regular Army, is announced.

First Lieut Benjamin B Cassiday, A S, assigned to Scott Field for training in Balloon and Airship School

Two months leave of absence is granted to Capt. William B Meyer, A S

Maj Arnold N Krogstad, A S, relieved from duty at Hq Second Corps Area, New York; to sail about Aug 28, 1923, from San Francisco for Hawaii for duty with Air Service troops, Hawaiian Dept.

The Coast to Coast Dash

First Lieut Russel L Maughan, A S, world's maximum speed record holder, on June 12 started from Mitchel Field in a DH4 on a reconnoitering trip over the route he will take in an attempt to make a dawn-to-dark flight to the Pacific Coast. His reconnaissance is expected to take him as far West as Salduro, Utah, by way of Washington, Dayton, St. Joseph, Mo., and Cheyenne, Wyo.

Lieutenant Maughan will familiarize himself with landing fields for his proposed dash and experiment with a special mixture of benzol and gasoline Superior combustion of this fuel is calculated to add speed and mileage. He was accompanied as far as Washington by Lieut. James C Kennedy. Before his take-off Lieutenant Maughan said he planned to visit his family at Logan, Utah

West Pointers at Mitchel Field

A detachment of 210 West Point cadets, members of the first class, has arrived at Mitchel Field, Mineola, L I., for a week's training in aviation and artillery reconnaissance.

Another detachment has been sent to Fort H. O. Wright After a week there, the cadets will exchange places with those now at Mitchel Field.

110th Observation Squadron

The Air Service is about to turn over to the State of Missouri equipment for the 110th Observation Squadron, which is to be organized at St. Louis, Mo This equipment consists of eight planes, four hangars and spares

Army Team, National Balloon Race

The Army Air Service will be well represented at the national balloon race to be held at Indianapolis July 4. There will be three teams from the Air Service, each consisting of one pilot and one aide

The three Army teams to be entered in the national balloon race are

1 Capt Lester T Miller, pilot, Lt. Courtland M Brown, aide, Scott Field, Ill.

2 Lt. Robert S. Olmstead, pilot, Middletown A.I.D., Pa.; Lt John W Shoptaw, aide, Chanute Field, Ill

3 Lt James B Jordan, pilot, Scott Field, Ill., Lt Max F. Meyer, aide, Goodyear Tire and Rubber Co., Akron, Ohio

Lt Joseph P Bailey, Scott Field, will accompany the Army contestants to the race as the official operations officer and alternate

The Scott Field officers will leave for Indianapolis June 28

All the instruments to be used by the Army pilots in this classic have been carefully checked and calibrated at Scott Field under the supervision of the instrument section, Cadet J J Anderson doing most of the work attendant thereto

Each pilot will be furnished with one statescope, one altimeter, one recording barograph and also some form of vertical speed indicators In addition, three special instruments will be carried by members of the Army teams, one special barometer and two special vertical speed indicators.

Every facility for the insurance of success for the Army teams has been consulted and put to work Meteorological data is being furnished and every person in the Service who can in any way assist has put forth every effort to make possible another victory for the Army It was this same spirit of co-operation which won the prize last year when Maj Oscar Westover bested a large number of selected opponents and won the national trophy

Inspection of Mitchel Field

Maj Gen Robert L. Bullard, Commanding the 2nd Corps Area, recently inspected Mitchel Field in preparation for the war maneuvers which will start later in the summer In connection with these maneuvers, the site formerly occupied by Camp Upton and Fort Tilden will be used as emplacements for anti-aircraft gun and searchlight batteries from Fort Totten, which will operate against airplanes from Mitchel Field

U. S. NAVAL AVIATION

New World's Records by Naval Pilots

The following dispatch received in the Bureau of Aeronautics on June 9, tells of thirteen World's records established by Naval pilots at the Naval Air Station, San Diego, Calif.:

"Following official records made by Aircraft Squadrons Battle Fleet on June sixth and seventh. World's records broken: Distance and duration, Lieut. (jg) M. A. Schur in DT2 plane, time 10 hrs. 31 min. 11 sec, distance 1175 kilometers World's records established Lieut. (jg) M A Schur in DT2 plane, speed for 1,000 kilometers, time 8 hr. 51 min. 2 sec., speed 70.2 m.p.h. Lieut. R L Fuller in DT2 plane, duration and distance with 1,000 kilograms weight, time 2 hr. 46 min. 9 sec, distance, 325 kilometers. Lieutenant H E Halland in F5L plane, duration and distance with 500 kilograms weight, time 7 hr. 35 min. 54⅘ sec., distance 750 kilometers. Lieut E B Brix in DT2 plane, speed for 500 kilometers, time 3 hr. 57 min. 48⅘ sec. Lieut H T Stanley in F5L plane, duration and distance with 250 kilograms weight, distance 925 kilometers, time 10 hr 6 min 53 sec. Boatswain E E Rebar, DT2 plane, speed over three kilometers, 102.88 m p h Lieut. E B. Brix in DT2 plane, altitude with 250 kilograms weight, 12050 ft. Lieut. H. E. Halland in F5L plane, altitude with 2,000 kilograms weight, 5200 ft Ensign E. E Dolecek in F5L plane, altitude with 500 and 1000 kilograms weight, 8600 ft. Lieut. H. T. Stanley in F5L plane altitude with 1500 kilograms weight, 7600 ft. Lieut. C. F Harper in DT2 plane, altitude with no useful load, 15,100 ft Lieut R A Ofstie in TS plane, altitude with no useful load 18,400 ft."

Orders Issued to Officers

Lt. Comdr. Alstron R. Simpson, USN, Detached Naval Air Station, San Diego, Calif., to Aircraft Squadrons Battle Fleet.

Lt. (jg) George C. Haeberle, USN, Detached USS O15, to Naval Air Station, Pensacola, Fla.

Lt. (jg) James H. McKay, USN, Detached USS R25, to Naval Air Station, Pensacola, Fla.

Lt. (jg) John E. Shoemaker, USN, Detached USS O15, to Naval Air Station, Pensacola, Fla.

Lt. (jg) James R. Tague, USN, Detached command USS O7, to Naval Air Station, Pensacola, Fla.

Lieut. George F. Chapline, USN, Detached Naval Academy, Annapolis, Md., to Mass. Institute of Technology, Cambridge, Mass.

Lieut. Byron J. Connell, USN, Detached Naval Academy, Annapolis, Md.; to Mass. Institute of Technology, Cambridge, Mass.

Lieut. Calvin T. Durgin, USN, Detached Naval Academy, Annapolis, Md., to Mass. Institute of Technology, Cambridge, Mass.

Lieut. John S. Farnsworth, USN, Detached Naval Academy, Annapolis, Md.; to Mass. Institute of Technology, Cambridge, Mass.

Lieut. Theodore C. Lonnquest, USN—Detached Naval Academy, Annapolis, Md.; to Mass. Institute of Technology, Cambridge, Mass.

Lieut. Felix B. Stump, USN—Detached Naval Academy, Annapolis, Md.; to Mass. Institute of Technology, Cambridge, Mass.

Lieut. Frank D. Wagner, USN—Detached Aircraft Squadrons, Battle Fleet, to Naval Air Station, Pensacola, Fla.

Lt. (jg) Kenneth C. Hawkins, USN—Detached USS Utah, to Naval Air Station, Pensacola, Fla.

Lt. (jg) Clarence M. Head, USN—Detached USS R20; to Naval Air Station, Pensacola, Fla.

Lt. Comdr. Roland W. Schamann (SC) USN—Detached Naval Air Station, San Diego, Calif., to USS Arizona.

Lt. William S. Garrett, USS—Detached USS Pennsylvania, to Naval Air Station, Pensacola, Fla.

Lt. Donald J. MacCalman, USN—Detached Naval Air Station, Hampton Roads, Va., to USS Arizona.

Lt. Ten Eyck D. Veeder, USN—Detached USS Breck 6 15-23, to Naval Air Station, Pensacola, Fla.

Lt. Carlos W. Wieber, USN—Detached Aircraft Squadrons Battle Fleet, to Naval Air Station, Pensacola, Fla.

Lt. (jg) Vilas R. Knope, USN—Detached Rec. Ship New York, N. Y., to Naval Air Station, Pensacola, Fla.

Ens. Rowland D. Hill, USN—Detached conn USS Milwaukee, to Naval Air Station, Pensacola, Fla.

Ens. Roland R. Kilhan, USN—Detached USS Oklahoma, to Naval Air Station, Pensacola, Fla.

Training for Airplane Races

The Naval Air Station at Anacostia will soon take on the appearance of a training camp when training begins for the Schneider Cup Race to be held in England Sept. 28 and for the Pulitzer Race.

The following pilots have been selected to represent the Navy in these races: Schneider Cup Race: Lieut. A. W. Gorton, Lieut. Rutledge Irvine, and Lieut. David Rittenhouse. Lieut. F. W. Weed will go to England with the above team and will be in charge of all arrangements for the Navy's participation in the races. Training for the Schneider cup race will be in fast types of service seaplanes. Shortly before the team is to leave for abroad, the pilots who are entered in the race will go to Philadelphia where they will try out the seaplanes which are to be taken abroad for the race. The team and planes will leave this country for England, Aug. 20, in order to afford ample opportunity for the pilots to accustom themselves to the conditions over the course.

While the Schneider Cup team is training at Anacostia, Lieutenants H. J. Brow, and L. H. Sanderson, U.S.M.C. and Ens. A. J. Williams will be training for the Pulitzer contest. These officers, who all had experience in the race at Detroit last year, are expected to carry the Navy standard to victory in St. Louis.

Naval Aviation During Shrine Convention

The Naval Aviation activities during Shrine Week gathered in Washington representative units and planes from practically all Naval Aviation activities, and were on a scale that is likely to impress the several hundred thousand visitors who thronged the city with the importance that aviation has come to have in Naval activities.

During the week of the Shrine Convention, ten Naval planes were placed on exhibition around the base of the Washington Monument, and thousands of visitors to the city thronged the exhibit from early morning until late at night. The center of attraction was the historic NC4, first plane to cross the Atlantic Ocean. A staging was built over the boat so that the sight-seers might have an opportunity to view the interior, and Chief Machinist Mate Rhodes, who was a member of the crew of the NC4, was present daily to explain the plane and tell of the voyage by air across the Atlantic. Other planes represented in the Navy exhibit were the new types of observation and spotting planes, the M20 and the MO1, also a "mechanical humming bird" designed for use on board submarines. The latter type was entered in a night parade during the Shrine Convention mounted on a float. It was outlined in electric lights and introduced as the smallest seaplane in the world.

The presence of the U.S.S. Langley in Washington attracted no end of attention from the interested visitors. The Langley negotiated the narrow channel of the Potomac River to the capitol with difficulty but success. She is the largest craft that has ever been brought to Washington, and skilful seamanship was required to bring her up the river. The Langley gave exhibition flights from her deck and demonstrated landing on board daily for the benefit of crowds which thronged the Potomac Park to witness the novel craft. When not engaged in actual flying operations she was berthed at the Washington Navy Yard and was open to visitors every day.

The most distinguished visitor to the Langley during her stay in Washington was President Harding. The President was received on board by Capt. S. H. R. Doyle and Comdr. Whiting on Monday, and, in spite of a downpour of rain calculated to dampen the most ardent enthusiasm, the Chief Executive spent more than an hour in going over the ship and investigating her various developments. In the presidential party which visited the Langley were Secretary Work of the Department of the Interior, Secretary Wallace of the Department of Agriculture, Rear Admiral Moffett, and Captain Adolphus Andrews, aide to the President.

On Tuesday, June 5, the Navy gave an aerial demonstration for the benefit of the Shrine visitors which was unique in the history of Naval Aviation. Never before has such a representative gathering of Naval aircraft been assembled and operated together. Torpedo planes from the Atlantic Fleet Air Force, scouting planes from the same organization, combat planes from Anacostia, Marine Corps aviation units from Quantico, and the Langley, all participated in a general melee which gave an adequate impression of the scope and uses of Naval aircraft in the Fleet. Two of the features of the exhibition which excited particular interest were the laying of a smoke screen over the Potomac River by an F5L and the parachute jump made by Corporal Peet, U.S.M.C., from a DH4B.

The Langley was well represented in the parade of Shrine Week by a Vought plane appropriately decorated and drawn by a detail of bluejackets through the streets.

Navy Balloon Fired On

Ballooning over West Virginia has come to be a hazardous business for Navy pilots who are in training for the National Elimination Balloon Race to be held in Indianapolis, July 4. In a flight from Hampton Roads recently, Lieut. F. P. Culbert was in the air for 23½ hrs. and covered a distance of 295 miles. During the voyage the balloon was a target for rifles several times, and just before landing some wary citizen opened up with a high powered rifle and bullets were heard whizzing by the car much too close for comfort. Upon landing twenty bullet holes were found in the bag. It is believed that the marksmen were moonshiners who suspected the naval pilots of attempting to locate their stills from the air.

Howard E. Coffin Pres. B.H. Mulvihill, V. Pres. **Official Bulletin of National Aeronautic Association of U.S.A.** B.F. Castle Treas. John B. Coleman, Rec. Sec.

Col. H.E. Hartney, General Manager. Cable Address: Nalaero. National Headquarters, 26 Jackson Place, Washington, D.C.

The National Aeronautic Association of U.S.A. assumes responsibility for the statements under this heading.

Changes on Board of Governors

The following changes have taken place on the Board of Governors since the issuance of the June Bulletin:

Charles S. Rennan, governor of the 6th District, has resigned on account of ill health. Mr. Reiman has been dangerously ill and has been obliged to give up all business and accordingly, the governors of the association regretfully accepted his resignation, which took effect June 15.

To fill the vacancy on the Board of Governors in the Second District, Capt. Theodore Knight has been elected governor. Captain Knight is one of the leaders in aeronautics in this district and the association is fortunate in securing the active aid and support of a man of such business acumen and prominence as Captain Knight.

Col. H. E. Hartney, formerly acting general manager at national headquarters in Washington, is now vice president of the General Airways System, Inc., with offices in Washington. Colonel Hartney is no longer officially connected with the association.

Philadelphia Chapter Formed

On Tuesday evening, June 6, the Philadelphia Chapter was formed following a dinner at the Bellevue Stratford Hotel. The charter was presented by Conway W. Cooke, chairman of the membership committee of the association, and the officers of the chapter were elected as follows:—Hollingshead Taylor, president, Samuel B. Eckert, vice president, and C. T. Ludington, secretary-treasurer. The following were elected to serve as directors: W. W. Kellett, president of the Aero Club of Pennsylvania, C. G. Ireland, R. G. Miller, R. P. Strine, H. N. Taylor, C. T. Ludington and S. B. Eckert.

The principal guests of the evening were Lieuts. Oakley G. Kelley and John A. Macready, who recently made the world's record for sustained flight, from New York to San Diego in 27 hr. Other guests were Admiral W. G. Harris, general manager of the Philadelphia Navy Yard, Vice President B. H. Malvihill, N.A.A.; Edward Schildhauer, formerly chief electrical and mechanical engineer of the Panama Canal, and now chief electrical engineer of the American Investigation Corporation, a huge airship company, Comdr. C. G. Westervelt, manager of the Naval Aircraft Factory at Philadelphia, Comdr. J. H. Klein, Jr., executive officer of the Navy's Rigid Airship ZR1, Comdr. H. W. Richardson, one of the pilots of the Navy's trans-Atlantic Flight, Lieut. C. A. Tinker, director of information of the N.A.A., and Lieut. L. B. Mollison, air officer of the Third Army Corps Area.

The principal speaker of the evening was Admiral Harris, followed by Lieutenants Kelly and Macready, who gave thrilling accounts of their trans-continental flight and the altitude flight of Lieutenant Macready, who reached a height above sea level of 40,260 ft. Mr. Schildhauer, Captain Cooke and Lieutenant Tinker also spoke concerning the activities of the N.A.A.

Fifteen students of the Philadelphia Episcopal Academy who have formed the junior branch of the Philadelphia chapter, were present, and Alfred Ostheimer, 3rd, who headed the delegation, promises that the branch will be extended to include practically all of the students at the Academy, which will total nearly 300.

Moving pictures were shown of the trans-Atlantic flight and the Army's activities at McCook Field, which gave a very comprehensive idea of the methods employed by the Army Air Service in developing aircraft of reliability and usefulness in war and peace.

The following interview with Lieutenants Kelly and Macready was printed in the Philadelphia *Ledger*:—

Perhaps it is that eight months of overalls and grease with days and nights crowded with hope and doubt and a dozen other emotions battling for supremacy, can persuade a man that he is not a hero after he has achieved the almost impossible. Or perhaps it is merely the Army's system of effacing the individual and transforming him into a unit for the glorification of the service. The answer certainly is not to be found in the two men who did the almost unconceivable—a non-stop transcontinental air flight.

Lieutenants Kelly and Macready are not romanticists. They dream and hope for the best, but always in the iron-clad regulation army manner, and leave the weaving of romance to the public.

"It was a great flight, of course," said Lieutenant Macready last night, "but when we landed on the coast after our trip, we certainly could not understand all the harraking of the people."

There is nothing in their appearance or manner to distinguish them from any other Army aviators—just two happy smiling, blue-eyed men who have found a strong anchorage in the Army and aviation and probably would be at a loss what to do if they didn't have airplanes to fly and tinker with.

And the flight—Lieutenant Kelly looked serious a moment as though peering into the past for something. "That night watchman who said he saw us over Kansas City must have been dreaming," he said, "He was a darn poor watchman because we were not within 100 miles of that old town and we didn't want to be." They realize now what they have accomplished—for aviation. But the long months of toil, of sleepless nights and worry, of test flights and endurance flights with the giant T2 machine, is still the outstanding thought in their minds.

A successful flight consuming twenty-four hours cannot quite overcome those eight months of toil with grease-smeared faces and hands, and brains that ached for a rest. And then, when the thing was accomplished the reality was bare, stripped of illusion and romance—just another flight.

"It wasn't until three days after it was over that we really knew what we had done," said Lieutenant Macready. "We had dreamed of it so long and worked so hard that when it really came it was not so big after all." "The public," said Lieutenant Kelly, "thinks of this flight only as something never done before. They forget, if they knew about it at all,

COMING AERONAUTICAL EVENTS

DOMESTIC

July 4 — National Balloon Race, Indianapolis, Ind.
Oct. 1-3 — National Airplane Races, St. Louis, Mo.
Late Fall — Curtiss Marine Flying Trophy Race.

FOREIGN

June 25-30 — International Aero Congress, London.
July 20-Aug. 12 — International Aero Exhibition, Gothenburg, Swedeu.
Aug. 3-31 — Sailplane Meet, Rhoen, Germany.
Aug. 5-26 — Sailplane Meet, Vauville, near Cherbourg, France.
Sept. 23 — Gordon Bennett Balloon Race, Brussels, Belgium.
Sept. 28 — Schneider Maritime Aviation Trophy Race, Cowes, Isle of Wight, England.
Dec. 1 — Entries close for French Engine competition.

our hard work and study" Lieutenant Macready agreed with him on that score "It was a big week's work for me," he said, "I made that flight, won some money and topped it off by getting married"

Both men are fatalists as far as their careers are concerned. They like the Army and intend to stay in it. And the future—well, Kelly is going to Mitchell Field, Long Island, now

"That flight doesn't mean anything to the Army as far as Macready and I go," said Kelly, "We don't take our pick of places to go We have to obey orders the same as any of the others. That's that"

"And what were your sensations when you were flying?"

Lieutenant Macready racked his mind for a suitable answer.

"What would they be after eight months of hard work and hoping? We hurried to New York, got the latest observations of the Weather Bureau, went out to Mitchel Field and made the final preparations We were dog tired and sleepy. Then we hopped off"

One could easily picture them crouched in the cockpit peering into the gloom ahead, their eyes tense, the tiny wrinkles contracting as they sped through the air

"There was no sleep for either of us And we knew every place we passed," said Macready

But the predominating thing in both men is their sincerity and love of flying and their fatalistic outlook for the future.

Two men who have achieved one of the greatest things in present day flying—Kelly wishing he could have stayed at San Diego and Macready still the hero of his own honeymoon.

Chapter Activities

Chapter activities are going on throughout the country in a very gratifying manner Davenport, Ia., has charter No 3 and Akron, Ohio, has No 4 for their local chapters, while applications for charters, up to June 14, in addition to those already noted have been received from Pittsburgh, Detroit, Miami and Pensacola, Fla, Nashville, Tenn, Savannah, Ga., Waterloo, Ia., Boston, Lowell, Springfield and Worcester, Mass., and Manchester, N H, as well as many others, bringing the total number of cities and towns in which chapter activities are under way, up to 162

Memorial to American Volunteers

July 4 there will be unveiled in Paris in the Place des Etats Unis, a memorial raised by French subscription to the memory of the American volunteers who fought and died for France in the Foreign Legion and in the Lafayette Escadrille in the years before the United States entered the war

Practically all classes in the country, from the highest to the lowest, have contributed to the erection of this monument, for the French hold especially honored in their memories the names of those young Americans who gave their lives for France as Volunteers

The unveiling ceremony will probably be performed by Premier Poincaré

On the plinth the names of those who died will be engraved, and, as typical of these gallant knight errants who loved France as their second country, the features of Alan Seeger have been chosen as model for those of the central figure

U. S. Aeronautical Safety Code

The Sectional Committee of the Aeronautical Safety Code which is sponsored by the Bureau of Standards and the Society of Automotive Engineers held a meeting in Washington, D C May 25, at which the revised sections of the code covering Balloons, Airships and Airdromes (airports) were submitted and approved It was decided to issue these sections in tentative form for the present to give opportunity for anyone interested to criticize them and offer further suggestions

Copies of these sections may be had upon application to the Secretary, Sectional Committee, Aeronautical Safety Code, Bureau of Standards, Washington, D C.

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